

**PROPOSED REMEDIAL ACTION PLAN:  
OLD BASE LANDFILL AND FIRE TRAINING AREA  
NTC-BAINBRIDGE**

**October, 1999**

## **Summary**

The Navy has conducted field investigations of the former Navy Training Center – Bainbridge (NTC) to determine areas of environmental concern and recommend cleanup options. The Old Landfill (Site 1) and the Fire Training Area (FTA) with oil separator pit (Site 2) were found to be the two locations of primary concern. This summary of the Proposed Remedial Action Plan (PRAP, or simply Proposed Plan) for Sites 1 and 2 was prepared to provide the public with a brief description of actions completed and possible cleanup alternatives, and to give the public an opportunity to comment on the approach being proposed. This PRAP is being published in accordance with the requirements established in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) § 117(a), and the National Oil and Hazardous Substances Pollution Contingency Plan found at 40 CFR § 300.430.(f)(2).

### **1.0 Introduction**

The Proposed Remedial Action Plan is one of many reports prepared for an Installation Restoration site, which is a Department of Defense property that is studied for the presence of contaminants or potentially harmful chemicals. Contaminants might be found in soil (either at the surface or below, called subsurface soils), in water (either flowing on the surface or below, called groundwater), or in sediments (in stream or creek bottoms). Past reports prepared for these Installation Restoration Sites include the Preliminary Assessment (PA), Site Inspection (SI), Remedial Investigation (RI), Engineering Evaluation/Cost Analysis (EE/CA), Feasibility Study (FS), closeout report, and Human and Ecological Risk Characterization.

This document is organized so as to provide the public with the following information: (1) background information on the two sites, (2) findings of studies on the sites, (3) cleanup alternatives considered, (4) the reason and criteria for recommending the preferred alternative, and (5) information on public input to the decision. Cleanup alternatives were chosen that would most effectively reduce the risks of contaminants to humans and the environment. A final decision on an alternative will be made after reviewing the public's comments.

### **2.0 Site Background**

**Site 1 – Old Landfill.** Site 1 is located on the northwestern boundary of the NTC, separated from Route 276 by the facility fence and a small unnamed stream. Site 1 was a

solid waste landfill that operated from 1942 until base closure in 1976. Disposal activities were unregulated and the landfill is unlined. Although disposal records were not kept, it is known that pesticides and asbestos-transite laden building debris were disposed at the site. In 1995 the landfill was capped as a Removal Action, and repairs were made to the cap in 1999.

**Site 2 – Fire Training Area.** Site 2 is located on the southeastern corner of the NTC and bounded by Happy Valley Branch on the southeastern border of NTC property near Maryland Route 222. Site 2 was used to train Navy recruits in fire fighting techniques from the 1940s until the late 1960s. The training involved spraying buildings with oil and igniting them. When the flames were extinguished with water, oil and water run-off drained into two subsurface concrete vaults off the southwest corner of the concrete pad. Overflow from the vaults went into an oil-water separator pit, then through a subsurface valve and piping system discharging into a shallow ditch leading to Happy Valley Branch. The site was remediated during 1994-95 as a Removal Action which included the following: excavation of 37,950 cubic yards of oil, debris, and pesticide-contaminated soils transported to Site 1 where the soils were capped, and restoration of the former oil-water separator pit as a wetland.

### **3.0 Summary of Previous Studies**

In 1987, Sites 1 and 2 were identified by Atlantic Division, Naval Facilities Engineering Command, as areas where environmental contamination may have resulted from past NTC operations and disposal practices. In order to document potential water quality impacts, Versar, Inc. performed a hydrogeologic investigation in 1988. This study entailed sampling groundwater, surface water, and stream sediments from Sites 1 and 2 with objectives of documenting contaminant releases and characterizing the extent of contaminant migration. Based on analytical results, the conclusions for Site 1 were that groundwater was contaminated by volatile organic compounds (VOCs) and sediments were contaminated with pesticides. For Site 2, a ditch draining into an adjoining creek was contaminated with petroleum hydrocarbons, and polycyclic aromatic hydrocarbons (PAHs) may have entered into groundwater.

Removal Actions, or Interim Remedial Measures (IRMs) were performed by the Navy at both sites prior to completion of the Remedial Investigation (RI)/Feasibility Study (FS). From July 1994 through June 1995, OHM Remediation Services Corporation performed delineation of contamination, removed contaminated soils from Site 2, consolidated outlying contamination from around the landfill, capped the Site 1 landfill, and conducted confirmation sampling.

**Remedial Investigation (RI).** The RI was developed to characterize the nature and extent of contamination and assess ecological and human health risks for Sites 1 and 2. Initial field work for the RI was carried out by Ecology and Environment, Inc. (E & E) in 1990 and 1991 and a second phase conducted in 1993-94. Subsequently, Removal Actions were performed in 1994-95 which removed, reduced, or contained much of the contamination. Results of confirmation sampling from the Removal Actions were

considered along with the earlier sampling results to assess ecological and human health risks. The RI was finalized in February 1999, and includes human health and ecological risk assessments based upon post-Removal Action conditions. Objectives of the RI effort were to address both Sites 1 and 2, and assess the following:

- Identify contaminant sources by sampling soil, water, and sediment.
- Determine the extent of contaminant migration into groundwater by installing monitoring wells.
- Using field data, determine the potential or actual health and environmental effects of past hazardous material disposal practices at each site.

Based upon conclusions reached within the RI, it was recommended that both sites should be the subject of a Feasibility Study (FS). The FS considered remedial measures for reducing any remaining risks not already addressed by the IRMs. Information from the RI was used to develop cleanup options for the FS.

### **Feasibility Study (FS).**

The purpose of the FS was to evaluate and screen options as well as develop cleanup alternatives for Sites 1 and 2. Specifically, the report reviewed assessments and conclusions concerning human health and ecological risks, computed possible cleanup goals based on these risks, and considered applicable remedial alternatives. Remedial action objectives (RAOs) are suggested for Sites 1 and 2.

For Site 1, the primary risks would be from the future consumption of groundwater (no public wells currently exist down gradient of the landfill). Based on 1999 data reported in the Human and Ecological Risk Characterization Report the estimated potential excess lifetime cancer risk associated with future adult residents is  $5.6 \times 10^{-5}$  due to the presence of chloroform, iron, antimony, thallium and manganese. However, vinyl chloride and trichloroethene (TCE) also exceeded their maximum contaminant levels (MCLs). For future child residents, the estimated cancer risk is  $2.8 \times 10^{-5}$  when using groundwater as a drinking water source. The carcinogenic risk for both receptor groups fall within the acceptable range of  $1 \times 10^{-4}$  to  $1 \times 10^{-6}$ , established by the EPA. The hazard index for future adult residents is 9.1 and 18 for future child residents.

For Site 2, the estimated potential excess lifetime cancer risk associated with future adult residents is  $7.3 \times 10^{-5}$  for carcinogenic PAHs (mostly benzo(a)pyrene), thallium, chloroform, iron and manganese. For future child residents, the estimated cancer risk is  $3.2 \times 10^{-5}$ . The carcinogenic risk for both receptor groups fall within the acceptable range of  $1 \times 10^{-4}$  to  $1 \times 10^{-6}$ , established by the EPA. The hazard index for future adult residents is 9.3 and for future child residents is 21.8.

## Summary of Site Risks

As part of the FS, the Navy performed a risk characterization to determine the current and future effects on human health and the environment. Only the groundwater pathway was evaluated for risks to human health at Sites 1 and 2. Exposure to contaminants in soil was not an issue at either site. Site 1 is a landfill and will be restricted from residential use. A removal action was performed at Site 2 that eliminated exposure to soil contamination by transporting the soil to a landfill. Therefore, risks were evaluated for the only group affected by groundwater, future adult and child residents. Residents outside the Port Deposit town limits use groundwater as a water supply source. However, there is no evidence that existing water supply wells outside the NTC have been affected by site contamination. Contaminants of concern have not been detected above screening levels in monitoring wells down gradient of the site, nor have contaminants been detected in off-site potable water wells when sampled in coordination with the Maryland Department of Environment. Future exposure to groundwater contaminants could conceivably occur only if new water supply wells were installed within the affected areas. Proposed future plans for the facility potentially include development of some areas for light industrial, commercial, recreational, and/or residential uses. To further reduce the possibility of exposure to groundwater, the Navy will restrict the future use of groundwater base-wide.

## Human Health Risks

The baseline Human Health Risk Assessment (HHRA) focuses on potential risks to human receptors posed by environmental contamination related to Sites 1 and 2 at the NTC. The development of the HHRA can be reviewed in Section 5 of the RI Report. One of the objectives of the HHRA was to review the site characterization data available from both the RIs and subsequent removal actions and identify site-related Chemicals of Potential Concern (COPCs) in each exposure medium. Risk-based screening concentrations were used to eliminate chemicals that were considered unlikely to contribute significantly to overall site risks. The remaining (COPCs) were carried through the quantitative assessment, whereby estimated exposures were combined with toxicity values developed by EPA to estimate the magnitude of risks posed by site contamination.

The HHRA concluded that the major factors driving the estimated site risks are the possible use of groundwater as a future drinking water source. At Site 1 the estimated potential excess lifetime cancer risk associated with future adult residents is  $5.6 \times 10^{-5}$  due to the presence of chloroform, iron, antimony, thallium and manganese. However, vinyl chloride and TCE also exceeded their MCLs. For future child residents, the estimated cancer risk is  $2.8 \times 10^{-5}$  when using groundwater as a drinking water source. The carcinogenic risk for both receptor groups fall within the acceptable range of  $1 \times 10^{-4}$  to  $1 \times 10^{-6}$ , established by the EPA

The hazard index for future adult residents is 9.1 and 18 for future child residents. Noncancer hazard indices are driven primarily by manganese. As with beryllium, iron

noncancer risks did not change by more than 20 percent; therefore, risks are assumed to be the same as determined from the 1991, 1994 data (2.3 and 5.3 for adults and children, respectively). Adding iron risks into the manganese risks identified earlier results in a new total risk of 11.4 and 23.3 for adults and children.

The estimated potential excess lifetime cancer risk associated with future adult residents at Site 2 is  $7.3 \times 10^{-5}$  for carcinogenic PAHs (mostly benzo(a)pyrene), thallium, chloroform, iron and manganese. For future child residents, the estimated cancer risk is  $3.2 \times 10^{-5}$ . The carcinogenic risk for both receptor groups fall within the acceptable range of  $1 \times 10^{-4}$  to  $1 \times 10^{-6}$ , established by the EPA. Cancer risks found in 1999 are smaller than those found in 1991/1994, primarily due to a decrease in PAH concentrations at the FTA. The hazard index for future adult residents is 9.3 and for future child residents is 21.8. Primarily iron and manganese drive these hazard indices

### **Ecological Risks**

A Desktop Ecological Risk Assessment (DERA) was performed by the U.S. Fish and Wildlife Service in October, 1998, based on RI data gathered in 1990-94, and limited confirmation results generated during the Removal Actions of 1994-95. The report is included in the RI. The Desktop ERA evaluated risk due to contaminated sediment for four different ecological receptors using food-chain models based on ingestion of surface water and sediment by birds (the kingfisher) and mammals (the raccoon).

The risks associated with each site are based on the potential to impact ecological receptors. At the Old Landfill, risks were inferred for all the ecological receptors; benthic life, fish, piscivorous birds, and omnivorous mammals. At the Fire Training Area, risks were inferred for piscivorous birds and omnivorous mammals only. These risks are based on sampling results of sediment and surface water and on food-chain modeling.

Remediation activities were completed at Sites 1 and 2 during 1994 and 1995, and the passage of time has permitted those actions to become effective, changing the characteristics of the NTC Sites and contaminated media, particularly sediments. A 1999 report, the Human and Ecological Risk Characterization (HERC) for IR Sites 1 and 2 gathered new data at the locations that previously drove the worst case ecological risks. For Site 1 sediments, 24 of the 26 analytes (contaminants) screened showed hazard quotients reduced by at least 20 percent, and 14 of 15 analytes in surface water had hazard quotient similarly reduced. The HERC also reported comparable reductions in hazard quotients for most ecological risks examined at Site 2.

### **Cleanup Objectives**

For Site 1:

- Prevent humans from consuming groundwater contaminated with chlorinated hydrocarbons (1,4-dichlorobenzene, chloroform, TCE, vinyl chloride (VC)), arsenic, iron, and manganese.
- Prevent animals from being exposed to pesticides, carcinogenic polycyclic aromatic hydrocarbons (PAHs), and metals in sediment, and metals and in surface water.

For Site 2:

- Prevent humans from consuming groundwater contaminated with 1,1,2,2-tetrachloroethane, carcinogenic PAHs, arsenic, iron, and manganese.

The RAOs determined for both sites were to reduce exposures to contaminants through each of the exposure routes to acceptable levels by blocking or restricting the routes of exposure or by reducing contamination concentrations.

#### **4.0 Cleanup Alternatives**

Summarized in this section are three possible cleanup alternatives for Sites 1 and 2. A detailed analysis of each alternative can be found in the FS.

**Alternative 1 – No Action.** The No Action alternative is required to be evaluated under the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This option would not include any type of environmental monitoring, institutional controls, or remedial action, and therefore no costs are associated with this alternative. For Site 1 this would mean leaving contaminated sediments in place, and for Sites 1 and 2 leaving groundwater in its present state. The No Action alternative's primary purpose is to serve as a baseline for comparison with the effectiveness of other alternatives.

**Alternative 2 – Institutional Controls.** Institutional Controls are actions taken other than direct cleanup measures that would afford a measure of protection for human health from environmental contamination. Typical institutional controls include deed restrictions on the construction and use of private wells, well use advisories, fencing to prevent contact with contaminants, or other similar measures.

For Site 1, a prohibition on the use of groundwater for human consumption would be achieved through the use of deed restrictions, along with monitoring groundwater on an annual basis for five years. This institutional control would not place a restriction on the use of groundwater for industrial functions. The monitoring effort would help track concentrations for contaminants of concern (COCs) and assure there continues to be no serious threat to human health or the environment. A deed restriction would also be established to prohibit construction, excavation, or any other intrusive activity on the landfill that might disturb or damage the landfill cap. The purpose for this institutional control is to protect the cap which has been installed to prevent further contamination of groundwater by waste materials in the landfill; the cap also serves as a barrier to casual contact of the wastes by humans and animals.

For Site 2, a prohibition on the use of groundwater for human consumption would be achieved through the use of deed restrictions, along with monitoring groundwater on an annual basis for five years. This institutional control would not place a restriction on the use of groundwater for industrial functions. As discussed in Section 6.0, continued monitoring of groundwater at Site 2 is not being proposed.

**Alternative 3 – Active Remediation/Treatment.** This alternative entails using remedial technologies or techniques to directly clean up contaminated sites. Treatment methods can include groundwater extraction, air stripping, precipitation/coagulation/flocculation, sedimentation, and sediment excavation and disposal.

For Site 1, groundwater would be extracted from existing wells and treated to cleanup goals. A National Pollutant Discharge Elimination System (NPDES) or State Pollutant Discharge Elimination System (SPDES) permit would be necessary to discharge the treated groundwater into surface streams. Contaminated sediments identified as posing an ecological risk would be excavated, transported, and disposed at an off-site Treatment, Storage, and Disposal (TSD) facility.

For Site 2, groundwater would be extracted from existing wells and treated to cleanup goals before being released to surface water streams in accordance with state and/or federal regulations.

## **5.0 Criteria to Be Used for Evaluation of Alternatives**

In the Feasibility Study, the three alternatives for Sites 1 and 2 were evaluated based upon the following seven criteria established in the National Contingency Plan (NCP). The first two are known as threshold criteria which an alternative must meet in order to be eligible for selection. The next five are known as balancing criteria that permit trade-offs between alternatives so that the best option will be chosen, given site specific data and conditions. Each criteria is briefly described below.

### *Threshold Criteria:*

**Overall Protection of Human Health and the Environment.** This criterion considers whether an alternative provides adequate protection for human health and the environment.

**Compliance with ARARs.** Applicable or Relevant and Appropriate Requirements (or ARARs) require that remedial actions comply with federal or state environmental standards, requirements, criteria, or limitations that are determined to be legally applicable, or relevant and appropriate.

### *Balancing Criteria:*

**Long-Term Effectiveness and Permanence.** This criterion focuses on the permanence and effectiveness of the controls that may be required to manage the remaining risk posed by treatment residuals and/or untreated wastes.

**Reduction of Toxicity, Mobility or Volume through Treatment.** This criterion stresses the preference for selecting remedial actions that permanently and significantly reduce the toxicity, mobility, or volume of the contaminants through treatment. .

**Short-Term Effectiveness.** This criterion addresses the impacts of an alternative during the construction and implementation phase until remedial response objectives are met.

**Implementability.** This criterion addresses the technical and administrative feasibility of implementing an alternative and the availability of various services and materials required during its implementation.

**Cost.** This criterion addresses the cost of each remedial alternative by accounting for an estimation of capital, operations and maintenance, institutional costs, and a present worth analysis.

Following the comment period, the following two modifying criteria are to be considered in finalizing the remedy selection.

**State Acceptance.** Addresses the State's comments and concerns for each potential remedy, and whether the State concurs with the preferred remedy.

**Community Acceptance.** Summarizes the public's general response to the alternatives described in the proposed plan.

## 6.0 Evaluation of Alternatives

### *Threshold Criteria:*

**Overall Protection of Human Health and the Environment.** Alternative 1, the No Action alternative would not be protective of either human health or the environment. For Site 1 this would mean leaving contaminated sediments in place, and for Sites 1 and 2 leaving groundwater in its present state.

Alternative 2, Institutional Controls would provide adequate protection to human health since the future use of groundwater for human consumption would be prohibited by the placement of deed restrictions at Sites 1 and 2. Human health protection would also be indirectly provided by the deed restriction which prohibits intrusive activity on the landfill cap, thus avoiding the potential for human contact with the buried wastes. Alternative 2 would not provide any protection to ecological receptors that might contact sediments in the streams adjacent to the Site 1 landfill. Note that protection of ecological receptors is typically not evaluated for groundwater contamination in the CERCLA ecological risk evaluation process.

Alternative 3, Active Remediation or Treatment, would fully satisfy the first evaluation criteria of protecting human health and the environment at both Sites 1 and 2. Contaminated groundwater would be pumped from the ground and be treated before being discharged to the surface; contaminated sediments would be excavated from the Site 1 stream beds and would be transported to an appropriate waste management facility for proper disposal.

**Compliance with ARARs.** ARARs may be action-specific, location-specific, or chemical-specific.

Because no active remediation would take place under Alternative 1, action- or location-specific ARARs are not applicable under Alternative 1. No chemical- specific ARARs have been identified for the sediments at Site 1. One major ARAR that has been identified for groundwater is the Safe Drinking Water Act (SDWA) which establishes Maximum Contaminant Levels (MCLs) permissible in drinking water provided to humans from public water supplies. Although the SDWA is not “Applicable” because it is not being used as a drinking water source, it is deemed “Relevant and Appropriate” for consideration in this situation because it provides a ready comparison to commonly accepted standards if the groundwater were to be developed as a drinking water source. Under the No Action Alternative number 1, the Safe Drinking Water ARAR would not be satisfied since no action would be taken to improve water quality to meet MCLs nor to limit its use as a drinking water source.

Alternative 2, Institutional Controls: The implementation of deed restrictions on the use of groundwater as a drinking water source would mean that the Safe Drinking Water Act would no longer be “Applicable” nor would it be “Relevant and Appropriate”. Thus, use

of deed restrictions as institutional would satisfy the Compliance with ARARs threshold criteria.

**Alternative 3, Active Remediation or Treatment:** In the case of groundwater use, where the Safe Drinking Water Act has been identified as an ARAR, it is expected that Alternative 3 would ultimately satisfy the ARAR compliance criteria. Contaminated groundwater would be pumped to the surface and treated to achieve MCLs before the water would be released to a stream. However, until all water remaining in the ground satisfies the established MCLs and no longer requires treatment, ARAR compliance has not been attained.

After application of the two threshold criteria to the three alternatives, it is clear that only Alternatives 2 and 3 satisfy the minimum requirements for acceptance as a cleanup alternative. Accordingly, Alternative 1, No Action, will be dropped from further discussion as the next five balancing criteria are considered below.

*Balancing Criteria:*

**Long-Term Effectiveness and Permanence.** As applied at either of Sites 1 and 2, both Alternative 2, Institutional Controls, and Alternative 3, Active Remediation/Treatment fully satisfy the evaluation criteria that the selected remedy be effective in the long term and that it will be a permanent remedy.

**Reduction of Toxicity, Mobility or Volume through Treatment.** The deed restrictions being considered as Institutional Controls (Alternative 2) do not provide any remedial treatment of contaminants, thus will not satisfy this balancing criteria. Only Alternative 3, Active Remediation or Treatment could reduce the toxicity, mobility or volume of contaminants and thus satisfy this criteria.

**Short-Term Effectiveness.** Alternative 2, Institutional Controls in the form of deed restrictions at either site, would be set into place at the time the property is deeded to the new owner, thus Alternative 2 would become fully effective in a relatively short time. Alternative 3, Active Remediation in the form of contaminated sediment removal from streams, could be performed in a relatively short time, probably a few weeks once a project is funded and initiated in the field. However, Active Remediation in the form of “pump and treat” for groundwater is a lengthy process, and it is often difficult to accurately predict the time required and the level of success that may be realized. Thus, Alternative 2 using Institutional Controls and Alternative 3 for the excavation of contaminated stream sediment could achieve the Remedial Action Objectives stated earlier and both satisfy the balancing criteria for short term effectiveness; in contrast, short term effectiveness would not be achieved for the Active Remediation of groundwater under Alternative 3.

**Implementability.** The Institutional Controls of Alternative 2 are easily implemented as the registration of a deed with the County. Sediment removal from a stream under Alternative 3 is a relatively simple project to accomplish. Placement of a groundwater

remediation system under Alternative 3 is more complicated, requiring the installation of pumps, piping, filters, and associated hardware, control and monitoring systems, and an incoming electrical feed. Water extraction and purification systems are relatively common and their installation would not be highly technical; what might prove to be more challenging would be fine-tuning and optimizing the system to capture and remove all contamination from the groundwater without incurring excessive costs in terms of volumes of water treated or the length of time the system would be required to operate.

**Cost.** As evaluated in the FS, the present worth cost to implement deed restrictions at Site 1 and to perform semi-annual monitoring of groundwater, surface water, and sediments for two years would be \$55,000. Recently, federal and state regulators have expressed that an annual monitoring program operated for five years would be more desirable. In that case, the present worth cost for Alternative 2 at Site 1 would be on the order of \$70,000.

In contrast, the five year present worth costs to implement active remediation under Alternative 3 at Site 1 is estimated at \$690,000. Costs considered in this analysis include the capital cost to install the groundwater treatment system, its operation for five years (which accounted for approximately 70% of the total cost), a stream sediment removal project, semi-annual groundwater monitoring, and the posting of signs for access restriction.

Costs for Site 2 were developed and evaluated using factors comparable to Site 1. The five year present worth costs for Alternatives 2 and 3 were estimated to be \$30,000 and \$366,000, respectively.

## **7.0 Preferred Alternatives**

This section lists only the Navy's preferred alternatives for the two sites. A limited discussion of the prime alternatives and the evaluation criteria applied is provided in the previous section. A detailed analysis of all the alternatives and reasons why other alternatives were not considered feasible can be found in the FS.

Based upon comparison of the three alternatives developed in the FS with the seven threshold and balancing criteria, Institutional Controls are the recommended alternative for Sites 1 and 2. The Institutional Control alternative would reduce human exposure to contaminants by restricting the use of groundwater as a drinking water source through deed restrictions on new well construction. Institutional Controls would also restrict intrusive activities at the landfill, thereby preventing direct contaminant exposure and further groundwater degradation. An annual environmental monitoring program that records current site conditions and identifies concentration changes would also be conducted over five years at Site 1. Data gained from this monitoring would be useful in determining the effect COCs may have on potential site receptors and help determine if additional actions are warranted.

This selection was chosen for several reasons. First, human health risks have been evaluated as required by CERCLA; there are no completed exposure pathways that allow unacceptable levels of risk, as determined using EPA's methodologies. Future risk can be adequately managed using Institutional Controls.

Second, the Navy has implemented presumptive remedies as Interim Remedial Measures both sites. Presumptive remedies, such as the capping of a landfill, are those that EPA considers to be the first and best course of action in a given contamination scenario. A presumptive remedy may or may not require further cleanup action. Following implementation of a presumptive remedy, the preferred next step is to monitor the site and determine if the remedy is functioning properly and successfully, then evaluate the need for further action.

Third, as required under CERCLA, risks to the environment were considered. In the 1998 Desktop Ecological Risk Assessment, sediments in the streams along the landfill were identified as risks to benthic life, fish, fish-eating birds, and omnivorous animals. More recently, An Ecological Assessment Using The Rapid BioAssessment Protocol was performed. In it, a low level of biological health was noted for the west branch tributary (along route 276), and stream bank stabilization using concrete was attributed as a major influencing factor. Also cited was the close proximity to MD Route 276 and the likely impact of surface runoff on aquatic biota. While Institutional Controls cannot mitigate impacts to the environment, the companion monitoring program can continue to track ecological contaminants of concern in the stream.

Fourth, the 1999 Human and Ecological Risk Characterization report shows that levels of most contaminants, in all media, have decreased significantly. What is not clear at this time is whether contaminant levels have stabilized, or whether they will continue to drop. Until that question can be answered with certainty, it would be premature to undertake a sediment removal project at Site 1 that may do more damage than good by destroying aquatic habitat and associated organisms during the removal process, or to undertake a costly pump and treat remediation of groundwater when there is not a completed exposure pathway that would pose a risk to human health.

## **8.0 Public Participation**

The public comment period for the Proposed Plan offers the public an opportunity to provide input to the process for controlling contamination and risks at Sites 1 and 2. The public comment period will extend from October 20, 1999 to November 19, 1999. During the comment period, interested parties may submit written comments to the US Navy at the address below.

On November 10, 1999 the Navy will host two public information sessions at the Bainbridge Elementary School, 41 Preston Drive, in Port Deposit, MD. The sessions are scheduled for 2:30-4:00 p.m. and 7:00-8:30 p.m. Interested parties may visit at any time during either of the two sessions.

The public can obtain more information about contamination, human health risks and ecological risks by reading the RI, FS, Human and Ecological Risk Characterization and other reports in the Administrative Record for sites 1 & 2. The official Administrative Record is maintained by the Navy and available to the public at:

US Navy  
Engineering Field Activity Chesapeake  
Washington Navy Yard  
Building 212  
901 M St, S.E.  
Washington, DC 20374-5018

Contact: Frank Zepka  
202-685-3279

Additional copies of the Administrative Record documents are maintained in Information Repositories located in the Port Deposit and Elkton branches of the Cecil County Library.

Port Deposit Library  
64 S. Main Street  
Port Deposit, MD 21904  
Ph: 410-996-6055  
Hrs: Mon 12-8, Wed 10-6, Sat 10-2

Elkton Library  
301 Newark Avenue  
Elkton, MD 21921  
Ph: 410-996-5600  
Hrs: Mon - Thu 10-9, Fri 10-5, Sat 10-5

**9.0 Record of Decision.** Following the public comment period, the US EPA and the Navy will sign a Record of Decision. It will detail the cleanup approach chosen for the site, and will include the Navy's responses to comments received during the comment period.